

Descriptions for the work of Julie Rauer featured in *Mind* magazine:

### **Entropy**

Watercolor and graphite on paper  
14 x 11 inches  
Copyright March 17 2005 by Julie Rauer

Visualizing an aspect of thermodynamics, *Entropy* manifests the ferocity inherent in the transfer of heat energy within a system. Julie's painting does not conjure some form of "absolute entropy", rather, it visually manifests the change in entropy in this particular closed system--where the molecules and atoms of the dragonfly and walking stick insects have sped up; they are inextricably entangled at the most fundamental level, where the energy being generated has no place to go. A long life lived as suicide--to strike a human analogy.

### **Reign of the Speculist**

"Reign of the Speculist"  
Copyright c May 5, 2012 By Julie Rauer;  
Watercolor on paper;  
18 1/4" x 12 3/8"

--In Julie Rauer's ongoing series of "Anthrobotanical Portraits", an idea sporulates from the mind of one who speculates across disciplines, philosopher of the effervescent postulation, chrysalis thinker teetering on the event horizon of neuronal connection.

Manifesting aspects of mycology, neuroscience, entomology, and plant science, this piece--structured on Edo period Kabuki portraits of samurai--finds the Speculist sheltering himself from the deluge above, grasping a shiitake mushroom, engineered to protective proportions; buttressed by honor and nobility of purpose, graced with family crest of Meyer lemons and mission figs bound by calligraphic strokes, the Speculist is drowning from below, unaware that his kimono, a network of engorged cork tree cells, has shifted properties, to an altered state. One iris sees with clarity, the other disperses as a dandelion blown apart.

"Humans fear the deluge from above, but plants know when they are drowning from below." --Julie Rauer

## **Medusa's Clockwork Remains**

By Julie Rauer;

Watercolor on bristol vellum;

18 x 10 inches

Copyright c October 7, 2010 by Julie Rauer,

Co-Founder of ART SCIENCE COMPLEX

--Reimagining Greek Mythology through the prism of science--temporal physics, neuroscience, marine biology, herpetology, astronomy--Julie visualizes the Gorgon, Medusa, as the beautiful woman made monstrous by tragedy, drawing analogies to neuroscience, in the effects of FFI (Fatal Familial Insomnia). Dissected sand dollars and forked tongues of seaweed, infernal mechanisms of a boa constrictor jaw and amphibious pupils--herald this morphogenetic transformation from monster, to heroine, to pristine solace as deserved constellation.

## **HOBBLED SHRIMP:**

### **From the Speculative Science Drawing Folio Series**

Epigenetic speculation on combating acute hepatopancreatic necrosis syndrome in shrimp populations, invented and visualized in this original graphite drawing by Julie Rauer, Co-Founder of ART SCIENCE COMPLEX.

--Applying Origamic folding mechanisms, interdisciplinary potentiality is manifested, actively remodeling cell junctions. Gut villi emerge, progressively, from tissue Origami, analogized incolumnar tessellations of folded paper, with resonant functional echoes in flexed and folded hind wings of a grasshopper, *Dissosteira carolina*. Dynamic process and intracellular signaling sculpt convergent micro- and macroenvironments, in this transverse section of the small intestine (jejunum-ileum), and cross section of Origami tessellation.

Copyright c November 2, 2013 by Julie Rauer

## **Dark Matter: Portrait of a Cabinet Minister**

Copyright c January 2, 2011 by Julie Rauer;

Watercolor on Bristol Vellum;

18 x 11 inches.

--Creating a human avatar for unseen "dark matter", the invisible material comprising most of the mass of the universe, Julie Rauer's painting employs concepts in Astrophysics to manifest the unseen in the character of a venal man, whose corrupt and insidious

presence cannot be seen, but exerts a ferocious "gravitational pull" on everyone in his sphere of influence. Inspired by Somerset Maugham's short story, "The Cabinet Minister" (1922), Julie reimagines the thief of hoarded culture as a subject of science.

### **Dr. MacAlister Unhinged**

by Julie Rauer;

Copyright c September 1, 2011 by Julie Rauer;  
Watercolor on bristol vellum;  
16 x 8 inches.

--Aspects of materials science, marine biology, genetics, and neuroscience comprise the conceptual core of this recent painting, visualizing interdisciplinary science. Inspired by Somerset Maugham's short story, "Dr. Macalister", the moral and spiritual disintegration of a man exacting his decay on another, unsuspecting culture, is manifested through analogies in science. Proposing that, despite heritable traits, that epigenetic modifications may persist to encompass the alteration of individual brain function and evolution of fundamental character, Julie Rauer's painting imagines this experiment in a "laboratory" of 1920s China, and rapidly evolving colonies of bivalves--all reflected in glassy, noncrystalline polymers.

### **Planet Builders**

By Julie Rauer

Watercolor on paper  
14 x 9 1/4 inches  
Copyright July 15, 2010 by Julie Rauer

Here is one of Julie Rauer's (ART SCIENCE COMPLEX Co-Founder) recent paintings, "Planet Builders", which was published in Pacific San Diego Magazine last year. Visualizing interdisciplinary form and function across two areas of science--entomology and astrophysics--Julie draws analogies between the behavioral and working processes of Dung Beetles, and the formation of Europa's icy surface, struggles to craft an orb from the irregularity of the asteroid Gaspra, and experiments with both quasars and radio galaxies.

## **The Mermaid (Self-Portrait)**

by Julie Rauer;

Watercolor on bristol vellum;

18 x 3 5/8 inches

Copyright c May 7, 2011 by Julie Rauer

Reimagining mythology through the prism of marine biology. Nudibranchs, and Cephalopods as the chimerical basis of the mermaid for the new mythology shorn of preconceptions, and freed from the oft trodden paths of expected depiction.

"I found that only by "eliminating the bones" from the traditional mermaid, did her mythology come to life." --Julie Rauer

## **Bait Ball**

Creating interdisciplinary analogies to visualize synchronous Hippo Interactions, signaling pathways manifested through plant science, entomology and physics (mutual coupling and massive entanglement), in this original watercolor painting by Julie Rauer, Co-Founder of ART SCIENCE COMPLEX. Reflective of both cell proliferation and apoptosis in the Interactome, this piece, entitled "Bait Ball" (Copyright c December 9, 2012 by Julie Rauer; Watercolor on paper; 13 1/4 x 8 1/2 inches), explicates the geometry of a key predator-prey phenomenon in marine biology, by drawing myriad parallels to the behavior, structure, and function of carnivorous plants and their entomological banquets.

## **"Complemental Male (of *Ibla Scalpellum*)" Plate from the *BARNACLE CODEX***

by Julie Rauer

Colored pencil and graphite on paper

9 x 12 inches

Copyright August 20, 2009 by Julie Rauer

Julie Rauer's (Co-Founder of ART SCIENCE COMPLEX) drawing, or color plate, from her book, the *Barnacle Codex*, is a visualization of key aspects of Charles Darwin's eight years of research on barnacle physiology and function. Julie's color plates (freehand graphite and colored pencil drawings) incorporate her invented typefaces, and hand-lettered text explicating the underlying science--marine biology; these twenty-seven unique compositions conjure metaphorical interdisciplinary analogies between barnacle

form/function, and: botany, human anatomy and physiology, mycology, entomology, astrophysics, engineering, and architecture.

\*\*\*We invite you to visit our ART SCIENCE COMPLEX Website, for an in depth look into the "Barnacle Codex" book project. HELP US TO PUBLISH this singular book, for all to study and be inspired: [artsciencecomplex.com/galleries/barnaclecodex](http://artsciencecomplex.com/galleries/barnaclecodex)

### **Germinated Opera Singer: A Plastid Aria**

Elucidating morphogenesis, this watercolor painting visualizes my cerebral experiments with the dynamic effects of music on the anatomy of flowering plants. Imagining tissue fluidity pushed to ever evolving forms, without constraint, Julie Rauer created an entity shaped by the mechanics of epithelial tissue organization during morphogenesis, as well as by the mathematical precision of sound.

--Copyright c September 15, 2013 by Julie Rauer  
Watercolor on Paper

### **Zombie Endocrine Disruptors from the Speculative Science Drawing Folio Series**

by Julie Rauer

Speculating on a potential solution to the insidious resurrectional nature of zombie endocrine disruptors--specifically the pervasive synthetic androgen, trenbolone acetate, a bovine growth hormone used to fatten up cattle.

In this invention, an original graphite drawing by Julie Rauer, Co-Founder of ART SCIENCE COMPLEX, both cyclic process and solution are manifested in this singular object, a 12th century Iranian brass Rice Server, inscribed in Arabic with good wishes.

Visualizing a strategy for intervention, inspired by the bioluminescent Atolla jellyfish, a perpetual state of ersatz "sunlight" is Nanoengineered into the trenbolone metabolites; photocytes could be the answer to creating a relatively safe, stable photoproduct--as these light producing mitochondrial cells may add a water molecule across the n-bonds.

Copyright c April 20, 2014 by Julie Rauer  
Graphite on Paper  
9 x 12 inches

**Wigner function/four-state Schrodinger cats  
from the Speculative Science Drawing Folio Series**

by Julie Rauer

Visualizing superposition states in applied physics, through metaphor, of the imaginary and real entities in its Wigner function. Invented and manifested in this original graphite drawing by Julie Rauer, Co-Founder of ART SCIENCE COMPLEX, this speculation is Copyright c December 15, 2013.

Revealing the quantum character of four singular, coherent light states, this covered Chinese jar with spouts (ceramic with celadon glaze, 12th-13th century) exists as quadrature components--in shifting resonant frequencies--with the divided chambers of the human heart. Sharing points on the plane with both upper atriums and lower ventricles, are four-state Schrodinger cats.

Speculating on the interdisciplinary storage of quantum information, a sublime architecture may be generated between the functional histology of the circulatory system--in this section through the wall of the atrium, showing the inner lining of elastic fibers in the endocardium--and both the activated chambers of this Longquan Chinese vessel, and created memory patterns embodied in a 100-photon light state.

Graphite on paper

9 x 12 inches

Copyright c December 15, 2013 by Julie Rauer